Fig. 2. Curvature rate of Avena plants upon application of: (a) .05 mg/liter, indole-3-acetic acid, and (b) growth inhibitor. (Ordinate values given as mm deviation of the extended coleoptile from the vertical position.)

It is observed that a negative curvature is initiated which rapidly changes between the first and second hour to a positive curvature, reaching its maximum three hours after the application of the inhibitor. It is interesting to note that the reaction rate for this negative curvature is different from the negative curvature caused by auxin. This is shown by the control run made at the same time as the inhibitor test but by using a growth-promoting substance, indole-3-acetic acid, .05 mg per liter. Each point on the graph is the average of twelve Avena test plants.

Inhibitor was found in the cotyledons of radish plants grown in the light or dark, but it was not found in the hypocotyl in either case.

The inhibitor substance is of neutral character. Accordingly as one would expect on the basis of Went's potential gradient theory of auxin transport, it should be transported acropetally as well as basipetally. Experiments prove this to be the case, as was shown by equal amounts of inhibitor passing through normal and inverted 4 mm long sections of Avena coleoptiles. Similar experiments show there is likewise no inhibitor transport polarity in radish hypocotyl sections.

In conclusion, it may be said that the positive curvatures resulting from the application of the inhibitor are not to be considered the same as the positive curvatures resulting from the retardation of the physiological tip regeneration in the Avena coleoptile because these are usually of slight magnitude, and furthermore they are never preceded by a negative curvature during the first hour.

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